



Emerging viral and bacterial infections of the central nervous system

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Abstract:

This review focuses on emerging viral and bacterial infections in the human central nervous system (CNS) that are responsible for significant global morbidity and mortality. These infections include those responsible for acute neurological disease such as meningitis and encephalitis as well those associated with chronic neurodegenerative conditions. Recent changes in climate conditions and pollution have been precipitating factors leading to the emergence of many of these pathogenic organisms. In addition, increased urbanization, global travel, life span, and exposure to new vectors have promoted the organisms' spread across the globe. Categorization of many of these organisms includes identification of new species, recognition of new tropism to the CNS, spread into naïve demographic areas, increased human contact with zoonotic repositories including insect vectors, and reemergence of well-known organisms. These mechanisms are highlighted for the different organisms included in this review. Other mechanisms for CNS emergence such as genetic mutation of the organisms and immunosuppression and/or immunosenescence of the host are addressed. Viral and bacterial infections in chronic neurodegenerative diseases traditionally not thought to be infectious are considered. Although this review cannot be all-inclusive, the organisms included represent a sampling of extremely important microbes and their role in CNS pathogenesis in the twenty-first century.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Unspecified Exposure

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

Global or Unspecified

Health Impact:



specification of health effect or disease related to climate change exposure

Infectious Disease, Neurological Effect

Infectious Disease: Airborne Disease, Foodborne/Waterborne Disease, Vectorborne Disease

Vectorborne Disease: General Vectorborne, Mosquito-borne Disease, Tick-borne Disease

Mosquito-borne Disease: Chikungunya, Viral Encephalitis, West Nile Virus

Tick-borne Disease: Ehrlichiosis, Other Tick-borne Disease

Tick-borne Disease (other): human monocytic ehrlichiosis (HME)

Resource Type: 

format or standard characteristic of resource

Review

Timescale: 

time period studied

Time Scale Unspecified